VULCAN IRON WORKS LIMITED

ESTABLISHED 1874

VULCAN



POWER BOILERS
HORIZONTAL RETURN TUBULAR

WINNIPEG

JAN., 1932

CANADA

P-12



General Offices and Works, Point Douglas Ave., Winnipeg, Canada

VULCAN POWER BOILERS Horizontal Return Tubular Type



Vulcan Power Boiler Fig. No. 317

In presenting this bulletin on VULCAN H.R.T. Power Boilers, we wish to describe and tabulate what we consider as a series of standard boilers. You will find that they are proportioned according to the best engineering practice of to-day and according to experience gained through half a century in the boiler business.

We carry a large stock of boilers at all times for immediate shipment. However, if a certain size is not in stock at the time of placing an order it can be made up on short notice.

MATERIAL:

All plates used in the construction of our boilers are of the best quality flange steel with a tensile strength from 55,000 to 65,000 pounds per square inch. Tubes are hot drawn seamless. Flanges and nozzles are of forged steel and braces are from selected open hearth steel 60,000 pounds tensile strength.

CONSTRUCTION:

All VULCAN Boilers are manufactured according to the Canadian Inter-Provincial Regulations, from registered designs.

Shells up to and including 8'0" in length are usually made in one section, from 10'0" up to and including 18'0" in two sections, and over 18'0" in three sections. Each plate forms the entire circumference of the boiler, with only one horizontal seam which is placed in the upper quarter of the shell above the fire line.

Our standard 30" and 36" diameter boilers are made with handholes only, for cleaning and inspection purposes, but the 36" diameter boilers can be furnished with a manhole in the shell at an extra charge. Boilers 42" to 48" diameter have a manhole in the shell and a handhole in the front head below the tubes. Boilers over 48" diameter are provided with a manhole in upper part of the shell and one in the front head below the tubes.

Boilers up to and including the 48"x12'0" are furnished with brackets for resting the boiler on the brickwork. Boilers over this size have hangers for suspending from cross beams and suspension columns. A table on page 14 shows the required size of beams, columns and hangers for carrying the boiler.

WORKMANSHIP:

All longitudinal seams are either Double Rivetted Butt or Triple Rivetted Butt, depending upon the efficiency of the joint required to obtain the desired working pressure. The rivet holes for the smaller sizes of boilers are punched small before rolling the plate and are reamed to size after rolling. On the larger boilers the holes are drilled from the solid after the plates have been rolled. All seams are carefully caulked and made tight and the boiler is then tested to at least one and one half times the intended working pressure.

All tube holes are drilled from the solid plate to size. The tubes are expanded and are long enough to make a strong bead at each end.

We are fully prepared to construct boilers of any design, capacity or working pressure, and would be pleased to furnish estimates, designs or other information on request.

VULCAN STANDARD TUBE ARRANGEMENTS

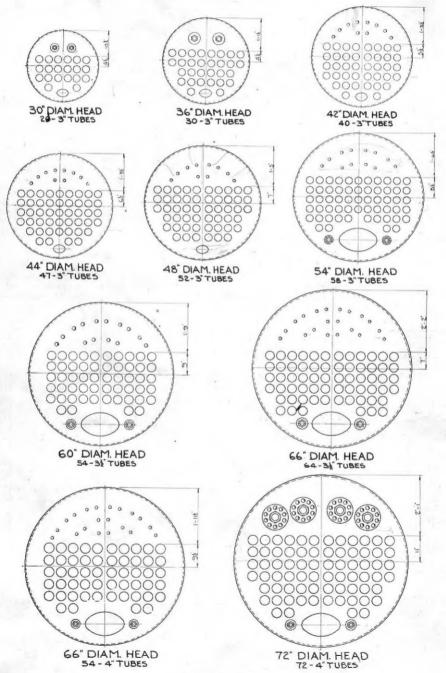


Fig. No. 318

Horse Power	Diameter of Boiler, inches	Length of Boiler, feet	Maximum working pressure allowed pounds per sq. in.	No. of 3" Ø tubes	No. of 31/2" Ø tubes	No. of 4" Ø tubes	With 3" Ø tubes	Sectional tube area, With 31/2" Otube	With 4" Ø tubes	With 3" Ø tubes	Tube heating sur- face sq. ft. With 3½" Øtubes	With 4" & tubes	With 3" & tubes	Total heating sur- face sq. ft. With 31/2" Øtubes	With 4" Ø tubes	Thickness of shell, inches	Thickness of heads, inches	Width of grates	Length of grates	Area of grates, sq. ft.	Size of steam outlet, ins.	Size of safety valve, ins.	Size of feed connection, ins.	Size of blow-off connection, ins.	Size of water column connection, ins.	F
			ved				bes	npes	pes	1	npes	bes	-	npes	bes			164	(1)	-					ns.	İ
10 1	30	9	106	20			88		-	90		T	120			74	100	2'6"2	3,0,,3	7.5	CA	2	-	17	-	-
12	30	00	106	20	-		68	-	1	122	-		160		1	74	100	,6,7	è	2.7	N	2	-	13/2	-	-
15	90	10	106	20			1 68			153			200			74	- 300	1,9	3,6,,3	8.7	272	2	-	1/2	-	-
25	36	9	102	30			1.331			233	1		290			9 2 2	100	3,0,,3	3,6,,4	10.51	6	21/2	-	13/2	-	-
30	36	12	102	30		1	33			280			348			6 2	100	3,0,,3	4,0,4	12.01	69	21/2	-	760	-	1
32 3	42 4	101	108	40			1.781.	-		312			382			un les	(00	1,9	3'6"4	12.21	69	21/2	174	172	17	1
37 3	42	12 1	108	40			1.782.	1		374 3	1	100	455 4	1		100	130	3, 6,, 3,	4.0.4	14.014	e	21/2	11/4	1/4	1,4	1
35 4	4	10 1	103 1	47 4			60	1		368 4			442 5			1.6	18	6,7	4'0'4	14.015.7	60	23/2	1 1/4	11/2	14	
40 5	44	12 1	103 1	47 5			2.09 2.			442 4	-		527 5	<u> </u>		n in	- H	10	4'6"4	5.716	m	m	134	11/2	11/4	-
50 5	48	12 1	15	52			31 2	1		490 5			585 6			100	17	4,0,4	4.0.4	16.0 1	4	m	11/4 1	11/2	1.14	1
55 5	48	14	115 10	52		,	2.31 2.			572 54			682 6			1.00	1.6	4,0,4	4.6" 4	18.0 2	4	6	11/4	1.2%	11/4	-
55 6	54 5	12 1	102 10	58			21			546 63		_	654 76			1 6 , 1	14	4,6,, 4,	4'6" 5	20.2	4	8	174	cu .	11/4	1
9 09	54 54	14 16	102 102	58			2.57 2.57			638 729			761 867			16 16	16 16	4'6" 4'6"	2,0,1	22.5 22	4	31/2 31	14 14	2	114 1	
9 9	09	5 12	2 112	58 66	54		57 2.93	3.34		9 622	594		7 755	7117		88	1 20	2,, 2,0,,	3" 4'6"	22.5 22.	4	31/2 31/2	172	2 2	114 114	
20	09	14	112	99 9	54	_+	N	3.34		2 726	t 693		998 9	7 833		88	2	2,0,,	,, 2,0,,	LO	4	3/2	2 1 1/2	2	1 1 3/4	
80	09	16	2 112	99 9	4 54		93 2.93	4 3.34		830	3 790		6 987	3 947		88	72	2,0,,	,,, 2,6,,	25.0 27	4	31/2	11/2	2	1 14	
90	99	14	102	-	64	54	e	3.94	4.39		822	790		976	944	200	72	5'6"	., 9,6,,	.5 30.2	9	2 -21/2	78	2	1 1/4	
100	99	16	102	*	64	54		3.94	4.39		940	902		1113	1075	180	1/4	,,9,9	,0,9	2 33.0	9	2-21/2	2	N	1.4	
110	99	₩	102		64	25		3.94	4.39		1056	1014		1248	1206	80	1/2	2,6,,	,,9,9	35.7	9	2-21/2	N	7	134	
100	72	14	101		86	72		5.29	5.85		1100	1058		1268	1226	20(c)	1/2	,,0,9	2,6,,	7 33.0	9	2-21/2	2	2	13%	1
125	72	16	101		86	72		5.29	5.85		1260	1210		1447	1397	mitte expen	74	,,0,9	0,9	36.0	9	2-23/2	2	2	11/4	
150	72	00	101		86	72		5.29	5.85		1420	1361		1618	1567	cles Cles	1/2	,,0,9	,,9,9	39.0	9	2-3	2	2	11/4	
175	72	20	101		98	72		6.29	5.85		1580	1512		1805	1737	**	12	,,0,9	1,0,1	42.0	9	2-3	2	2	1/4	20000

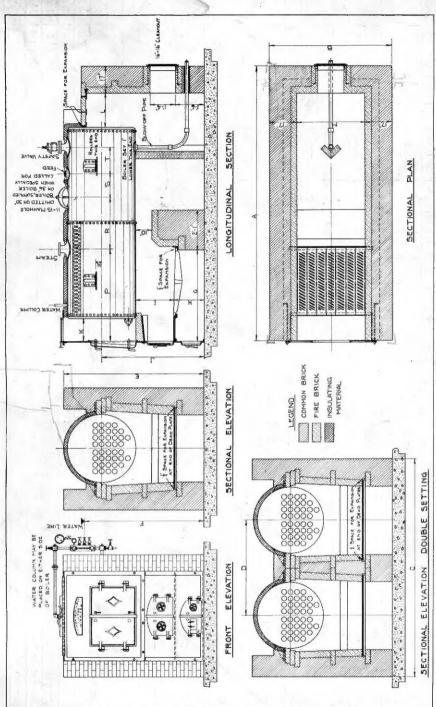
*Shipping weight with fittings, Ibs. IZBOJ JIDJ J7UJ SDUJ GOUGOUN *This weight includes suspension material as listed on page 14.

P		4.			-	-	1	ŀ	и	ŀ		1		į.			-			11.	1	Н		-
		10	12	12	52	30	32	37	35 4	40 5	50 5	55 55	9	92	9	20	80	90	100	110	100	125 1	150 1	175
9 Diameter of Boiler, inches	90	30	30	30	36	36	42	42	4	44	48 4	48 54	1 54	54	09	09	09	99	99	99	72	72	72	72
Length of Boiler, feet		0	00	9	10	12	9	12	10	12 1	12	14 12	14	16	12	14	16	4	16	80	4	16	18	AN R
ng press in.	Maximum working pressure allowed pounds per sq. in.	125	125	125	125	125	125 1	125 12	125 125	5 127	7 127	7 125	125	126	128	128	128	126	126	126	125 1	125 12	125 12	IRe 921
No. of 3' Ø' tubes		20	20	20	30	98	40	40	47 4	47 5	52 52	2 68	22	28	99	99	99							
No. of 315" Ø tubes					-										54	54	54	64	64	64	98	86	98	98
No. of 4" Ø tubes						Π												54	54	54	72	72	72	OF 2
1 2	With 3" Ø tubes	88	88	88	1.33.1	1.331	1.781	782	09 2	09 2	31 2.31	1 2.57	2.57	2.57	2.93	2.93	2.93		-					
sq. ft. With	With 31/2" Øtubes						1								3.34	3.34	3.34	3.94	3.94	3.94 5	29 5.	29 5.2	29 5.	29
With	With 4" & tubes																	4.39	4.39	4.39 5	85 5	85 5.	85 5.8	822
	With 3" & tubes	06	122	153	233	280 3	312 3	374 36	368 442	2 490	0 572	2 546	638	729	622	726	830					3		AIT
Tube heating sur- face sq. ft. With	With 31/2" Stubes							1		-					594	693	190	822	940	1056 11	1100 12	1260 1420	1580	1
With	With 4" Ø tubes									-							4	790	902 1	1014 10	1058 12	1210 1361	1512	1
	With 3" Ø tubes	120	160	200	290 3	348	382 4	455 442	12 527	7 585	5 682	2 654	761	867	755	998	186					<u> </u>		1
face sq. ft. With	With 31/2" Stubes														717	833	947	976	1113	1248 1	1268 14	1447 1618	8 1805	92
With	With 4" & tubes										-							944 1	1075	1206 12	1226 13	1397 1567	1737	37
Thickness of shell, inches	7	a (04	a (1)	o E	(ca	700	-		22	110	140	80	%	%	18	1.6	16	us 04 m/09	200	2000	1/2	70	750	700
Thickness of heads, inches	8	100	130	100	1/20	700	100	30	1.0	10 1	1.6 1.6	1 9	1.6	142	27.7	72	1/2	12	700	72	74	122	122	1/2
Width of grates		2.6	2, 6,,	2, 6,,	3,0,5	3,0,,	3, 6,, 3,	,6,,3	6,,9	6" 4'0"	0,, 4,0,,	" 4'6"	4,6,,	4'6"	2,0,4	2,0,4	2,0,9	2,6,,	2,6,,	2,6,, 6	9 ,,0,9	0,9 ,,0,9	-	,,0,9
Length of grates		3,0,,	3, 6,,	3, 6,,	3, 6,,	4,0,,3	3, 6,, 4	4,0,4	4,0,4	6" 4'0"	0" 4'6"	" 4'6"	2,0,1	2,0,4	4'6"	2,0,4	2,6,,	2,6,,	,,0,9	9,,9,9	9 ,,9,5	.9,9 ,,0,9		1,0,1
Area of grates, sq. ft.		7.5	8.7	00	10.51	12.01	12.21	14.014	14.015	15.7 16	16.0 18	0 20	2 22.5	22.5	22.5	25.0	27.5	30.2	33.0	35.7	33.0	36.0 39	0	45.0 VIV
Size of steam outlet, ins.		2	~	21/2	m	m	m	69	8	(7)	4	4	4	4	4	4	4	9	9	9	9	9	9	9
Size of safety valve, ins.		2	N	2	2	2	21/2	23%	21/2 2	21/2 2	21/2 21/2	3	m	m	m	m	31/2	31/2	31/2	37%	31/2 3	31/2 2-2	2-21/2 2-	21/2
Size of feed connection, ins.	18.	-	-	-	-	-	174	1.4	1.4	17%	14 14	17/4	11/4	77	7/2	1/2	172	12.	7	2	2	2	2	2
Size of blow-off connection, ins.	n, ins.	12/2	721	7/2	17%	72	13%	1.7%	11/6	1/2	11/2 11/2	N	8	2	2	8	2	8	8	N	2	2	2	8
olumn con	Size of water column connection, ins.	-	-	-	-	-	174	11/4	13/4	1.7%	11/4 11/4	11/4	1.74	13%	1.4	74	74	17/4	7.7	1/4	14	1 1/4	11/4 1	AN.
t of bare b		1400	1750	2200 3250	3250	3750	4300 5	5000 48	4800 5500	00 61	6150 6950	50 7300	0 8300	9200		9400 10700	120001	13300 1	149001	16400 1	16100 18000	361 0008	19950 21	21900
7 *Shinning weight with fittings. Ibs.		1900	3250	3700	5750	5350	2007	2 006	700 84	00 91	50 107	1900 3250 2700 5750 6350 7200 7900 7700 8400 9150 10750 11900 12900 13800 14700 15000 17300 21700 23200 23800 25500 27750	0 12900	13800	14700	16000	17300	00100	94 700	00000	0000	000	100	20200

*This weight includes suspension material as listed on page 14.

Diameter of Boiler, inches		10	12	15	25	30	32	37 3	35 4	40 5	50 5	55 55	9 60	99 (9	02 (80	90	100	110	100	125	150	175
	hes	30	30	30	36	36	42	42 4	44 44		488	48 54	54	54	99	09 6	09	99	99	99	72	72	72	72
Length of Boiler, feet		9	00	40	10	12	10	12 1	10 1	12 1	12 1	14 12	2 14	16	12	14	16	14	16	18	4	16	00	20
Maximum working pressure allowed pounds per sq. in.	ressure allowed	151	19	5	152	152	150	150 1	152 1	152 1	153 16	163 150	0 150	0 150	150	0 150	0 150	150	150	150	150	150	150	150
No. of 3" Ø tubes		20	20	20	30	30	40	40 4	47 47	-	52 5	52 58	8 28	28	99	99 9	99							
No. of 31/2" & tubes															20	54	54	64	64	64	98	98	98	86
No. of 4" Ø tubes				-					1								-	54	54	54	72	72	72	72
M	With 3" & tubes	68	88	.89	1.331	83	1.781	1.782.	09 2	09 2.	31 2	31 2.	57 2.	57 2.5	57 2.	93 2	93 2.9	93						
	With 31/2" Øtubes									1]		6	34 3	34 3.3	34 3.9	94 3.9	94	94 5.29	9 5.29	5.29	5.29
8	With 4" Ø tubes																-	4.3	39 4.3	39 4.3	39 5.85	5 5.85	5.85	5.85
	With 3" & tubes	90	122	153	233	280	312	374 3	368 4	442 4	490 57	572 546	638	8 729	622	2 726	830	-						
face sq. ft. W	With 31/2" Stubes									-	ì				594	4 693	3 790	822	940	1056	1100	1260	1420	1580
W	With 4" & tubega													7				790	905	1014	1058	8 1210	1361	1512
	With 3" & tubes	120	160	200	290	348	382	455 4	442 5	527 5	585 68	682 654	192 4	1 867	755	998 9	6 987							
face sq. ft. W	With 31/2" Stubes				1				1						717	7 833	3 947	976	1113	3 1248	1268	1447	1618	1805
8	With 4" Ø tubes												- 9					944	1075	5 1206	1226	1397	1567	1737
Thickness of shell, inches	168	10 10	w]0	w) ^{ec}	n 0	10 m	-014 -024	10°	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3/8		15 Id	ē . 14	함	72	32	757	75	1-102	北	0 0	4	900	900
Thickness of heads, inches	ches	h 14	F 4	10	1.6	rio I	101	16 3	Te I	1.6 1	16 1	72	1/2	3/2	12	12	1/2	700	12	200	16	41	0 0	જ
Width of grates		2, 6, 2	2,6,,	2'6"	3,0,,3	3,0,,3	6,,3	6,'8	6, 3, 6,	6" 4'0"		4.0" 4'6"	3" 4'6"	// 4/6/	, 2,0,	,,, 2,0,,,	2,0,,	.,9,9	,, 9,9	2,0,1	0,9	0,9	.,0,9	0,0
Length of grates		3,0,2	3,6,,	3.6,,	3,6,,4	4,0,3	,6,,4,	0,7	0,, 4,	6" 4	0" 4"	4.6" 4'6"	2,0,2	2,0,,	4'6"	2.0.4	.,9,9 ,,	2,6,,	6'0"	,,9,9	2,6,	0,9	.,9,9	1,0,1
Area of grates, sq. ft.		7.5	00	-1	10.51	12.01	12.21	14.014	1.015.7	.7 16.	.0 18	3.0 20	.2 22	5 22.	5 22	.5 25	0 27	5 30	2 33	0 35	7 33	0 36.0	39.0	42.0
Size of steam outlet, ins.	18.	~	N	21/2	m	m	m	0	6	6	4	4	4	4	4	4	4	9	9	9	60	9	9	9
Size of safety valve, ins.	.81	72	N	2	7	N	N	7	2	23/2 2	21/2 2	21/2 21/2	60	ro	m	6	e	6	31/2	33%	33%	31/2	31/2	2-21/2
Size of feed connection, ins.	, ins.	-	+	-	-	-	1/4	1 1/4	11/4 1	11/4 1	11/4 1	11/4 11/4	41 14	11/4	11/2	13/2	1 1/2	2	2	2	2	2	2	2
Size of blow-off connection, ins.	tion, ins.	13/2	11/2	1 1/2	11/3	13%	13/2	1.1/2	1/2	11/2	11/2 1	11/2 2	2	N	2	2	2	2	~	2	N	~	2	2
Size of water column connection, ins.	onnection, ins.	-	-	-	-	-	17%	11/4	1 1/4	1 1/4	11/4 11/4	14 114	4 11/4	11/4	77	177	**	17%	14	11/4	14/2	1%	777	174
Shipping weight of bare boiler, lbs.		1475 1850 2325 3250 3750	850	325	3250 3	1750 4	450 5	4450 5300 4950	50 57	5700 6600		7500 77	7700 8550	9600		11100	20 1250	1400	01570	0 174(001100	9700 11100 12500 14000 15700 17400 17000 19100 21150 23200	21150	2320

weight includes suspension material as listed on page 14.

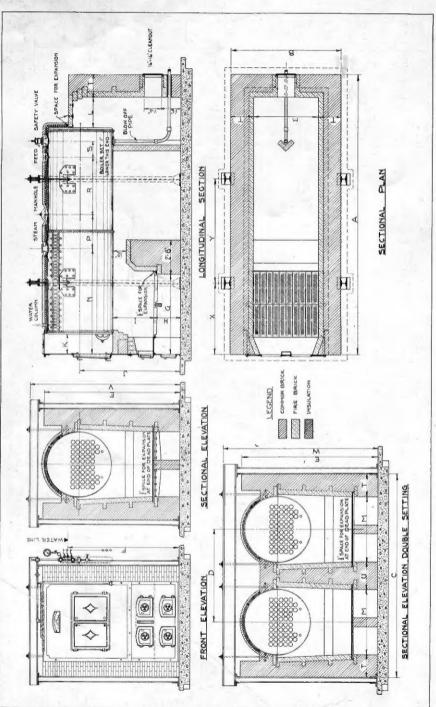


Setting Plan for VULCAN Power Boilers up to 48" x 12'0".-Fig. No. 319

VULCAN H.R.T. POWER BOILERS-Dimensions and Data for Settings

Diameter			30,,	1	36"	11	4	42"	7	44"	48"
Length		0, 9	8, 0,,	10, 0,,	10, 0,,	12' 0"	10, 0,,	12' 0".	10, 0,,	12' 0"	12' 0"
Length of Setting	A	10, 0,,	12, 0,,	14, 0,,	14' 3"	16' 3"	14' 7''	16' 7"	14' 7"	16' 7"	16' 7"
Width of Single Setting	В	5' 4"	5' 4"	5' 4"	2,10,,	5'10"	6' 4"	6' 4"	6' 4"	6' 4"	6'10"
Width of Double Setting	C						11' 3"	11' 3"	11' 3"	11' 3"	12' 3"
Centre to Centre of Boilers, Double Setting	D						4'11"	4'11"	4'11"	4'11"	5' 5"
Height of Setting	田	5' 6"	2, 6,,	5' 6"	6' 4"	6' 4''	7' 31''	7' 34"	7' 34"	7' 34"	7' 81"
Floor to Waterline	H	4'113"	4'11\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4'1112"	5' 51"	$5' 5\frac{1}{2}''$	6' 24"	6' 24"	6' 2"	6' 2"	6. 7311
Front to Bridgewall	Ü	3/11//	4' 5"	4' 5"	4' 83"	$5' 2^{1/2}_{2}$	4' 81"	5' 21''	$5' 2\frac{1}{2}''$	$5' 8\frac{1}{2}''$	$5' 2^{1/2}_{2}$
Floor to Grates	H	1, 3,,	1' 3"	1' 3"	1' 44"	1' 44"	1, 1,,	1, 2,,	1, 2,,	1, 2,,	1' 73"
*Grates to Shell, Minimum	H	1, 8,,	1, 8,,	1' 8"	$1' \frac{9\frac{1}{2}''}{9^{\frac{1}{2}}}$	1, 84,	$1'11\frac{1}{2}''$	1,1113"	1, 6,,	1, 8,,	2' 0"
Floor to Centre Line of Boiler	ſ	4' 24"	4' 24"	4' 24"	4' 8''.	4' 8"	5' 34"	5' 34"	5' 24"	5' 24"	5' 73''
Front to Boiler	· K	10,,	10,,	1, 1,,	1, 5,,	1, 5,,	1, 2"	1, 5,,	1' 2"	1, 2"	1, 2"
Boiler to Back Wall	Г	1' 8"	1' 8"	1, 8,,	1' 8''	1, 8,,	2, 0,,	2' 0"	2, 0,,	2' 0"	2, 0,,
Side Wall to Side Wall	M	2' 6"	2' 6"	2' 6"	3, 0,,	3, 0,,	3' 6"	3, 6,,	3' 6"	3' 6"	4, 0,,
Centre Line of Boiler to Bracket	Z	1,,	1,,	. 1"	2"	2"	33/811	33%"	27,8"	278"	378"
Front to Steam Outlet	Ь	2' 9"	2' 9"	5' 1"	5' 1"	7, 1,,	5' 1"	1,1,1	5' 1"	7, 1"	6'11"
Steam Outlet to Manhole	R	116 11	11 9//	0/ 71//	0, 7111	0/ 71//	2' 2"	2' 2"	2' 2"	2' 2"	2' 34"
Manhole to Feed	00	o 1		7	7		$1' 2^{1/2}_{2}$	1' 2\frac{1}{2}''	$1' 2_{2}''$	$1' \cdot 2\frac{1}{2}''$	1' 3"
Feed to Safety Valve	T	1'11\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3'11\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$2' 2^{\frac{1}{4}''}$	2, 24"	2' 24"	1, 8,,	1, 8,,	1, 8,,	8 (I)	$1' 5\frac{1}{2}$ "
**Thickness of Reinforced Concrete		9,,	6"	,,,9	,,9	9	1,8	8"	8//	1,00	30

*This height is determined by size of pattern for Front, but may be increased to any desired height by inserting a filler piece between upper and lower halves of front, in which case dimensions E, F, J are increased correspondingly. For burning lignite or bituminous coal we recommend that the distance from grates to shell be as given on page 16.
**This thickness is based on average soil conditions.



Setting Plan for VULCAN Power Boilers over 48" x 12'0".-Fig. No. 320

ettings
for S
Data
and D
nensions
-Din
BOILERS
POWER
N H.R.T.
VULCAN

VOLCAIN IN	1.4.1		LOWER		DOILER		Dimensions		ana	Data	TOL	Settings	ngs		
Diameter		48′′		54"			09			,,99			72'		
Length		14'0''	12,0,,	14'0"	16'0"	12.0,,	14'0"	16'0'	14,0,,	16,0,,	18,0,,	14,0,,	16,0,,	18,0,,	20,0,,
Length of Setting	×	18.7.	17/1//	19'1"	21.1.	17.7"	19'7"	21.7"	19'7"	21.7.	23,1,,	19,1,,	21,1%	23'7"	25'7"
Width of Single Setting	m	.,01,9	8,0,,	8,0,,	8,0,,	8,6,,	8,6,,	,,9,00	,,0,6	,,0,6	3,0,,	3,6	9,6,,	2,9,6	,,9,6
Width of Double Setting	0	12'3"	14'3"	14'3"	14/3//	15'7"	15,1,,	15'7"	16.7"	16,7,,	16'7"	17,2,	17,7,1	17.71	11,1,1
Centre to Centre of Boilers, Double Setting	Q	2,2,	6/3//	6/3//	6'3''	7.1"	1.1.1	1,4,2	,,L,L	,,L,L	"L'.L		2,1,8	,,L,00	8,1,,
Height of Setting	(LL)	7,815"	9/2//	9,5,,	9.5	9'41/5"	9'43/2"	9'41/2"	10'214"	10'214"	10'21/4"	10.7	10,1,,	10,1,,	10,7
Floor to Waterline	EL.	6.784	7.101/2"	7.101/4"	7,101/4"	7.91/2"	7,81/2"	7.812"	8.514"	8,214"	8,21/4"	%,6,8 ,6,8	, (f)	(f) (00	,6,0
Front to Bridgewall	O	5'81/2"	5'81/2"	6'214"	6,51/2.1	6'81/2"	6.21/2"	6,81/2"	6,81/2"	7,51%"	7,21/2"	2/8/9	7,23,6"	7'81/2"	8'21/2"
Floor to Grates	I	1.712"	1'1135"	1/111/5"	17111/5"	1'111/5"	1'1135"	1'4116"	2713/2"	2"11/2"	2.11/2"	2,136"	2'11/2"	2'11/2"	2/116"
*Grates to Shell, Minimum	-	2.0.,	2,8,,	2'6"	7,6,,	2'135"	2'11/2"	2'11/2"	2'4"	2.4"	2'4"	2'3''	2'3'	2'3"	2,3,
Floor to Centre Line of Boiler	-	5.7%	6'84"	., 1/88,9	6,8%"	6'7's"	6'714"		7.2%	7.234"	7.2%"	1,2,1	7.2.	1,2,,	1,9,1
Front to Boiler	×	1,5,,	1.477	1.4"	1.4"	1,6,,	1,6,1	1,6,,	1,6,,	1,6,,	1,6,,	1,8,,	1,9,1	1,6,,	1,6,,
Boiler to Backwall	1	2,0,,	2.0,,	2,0,,	5,0,,	2'4"	2'4"	2'4"	2.4"	2'4"	5.4	2'4''	2'4"	2'4"	2'4"
Sidewall to Sidewall	Σ	4,0,,	4,6,,	4,6,,	4'6"	2,0,4	2,0,9	2,0,,	2,6,,	2,9,9	2,9,9	,,0,9	0,0,9	,,0,9	,,0,9
Front to Steam Outlet	Z	7,111,2"	,,0,9	1,0,1	8,0,,	,,0,9	1,0,1	,,0,8	1.0,1	8,0,,	,,0,6	.,0,,1	8,0,,	,,0,6	10,0,
Steam Outlet to Manhole	٦	2'314"	2,8,,	2,8,,	2.8.,	2,8,,	2,8,,	2,8,,	5.8,,	5,8,,	5,8,,	3,0,,	3,0,,	3,0,,	3,0,,
Manhole to Feed	24	2'71,"	2'3"	3.3.,	4'3"	2'3"	3,3,,	4 /3/	3,3,,	4/3/	6'3'	2'101/2"	3,101/2"	4,101/2"	5,101/2"
Feed to Safety Valve	S	1,014"	1.3.,	1,3,,	1,3,,	1,3//	1/3//	1,3,	1,3,,	1,3,,	1/3//	1/4//	1/4//	1,4,1	1.4"
Thickness of Walls	-	17"	21,,,	21"	21"	21"	21,,,	21,,,	21,,,	21"	7	21"	2,"	23,	21,,
Thickness of Centre Wall	>	11.	21"	21,,,	21,,	25"	25''	26″	26″	25′′	26′′	,,92	25′′	26′′	722
Height of Suspension Beam, Single Setting	>	8'91/2"	10,2,,	10,2,,	10.2,,	10.9	10,8,,	10,8//	11,1,1	11/7//	11,2,,	12,0,,	12'2"	12'2"	12/2/
Height of Suspension Beam, Double Setting	≱	8'11 32"	10,1,,	10,8,,	10.8	11,0,,	11,0,,	11,0,,	11,8,,	12.0,,	12.0.	12,2,,	12'8'	12'8"	12'8"
Front to Column	×	1,8,4	4.4"	4'10''	5'4"	4'6"	5,0,,	2,6,,	2,0,9	2,6,,	,,0,9	2,0,4	2,8,,	,,0,9	,,9,9
Centre to Centre of Columns	>-	1,0,1	0,9	02	8,0,,	,,0,9	1,0,1	8,0,,	0,.2	8,0,,	,,0,6	1,0,1	8,0,,	,,0,6	10,0,
**Thickness of Reinforced Concrete Slab	1		, xo	, 00	,/o	10,,	10,,	10,	10,,	10′′	10,,	10,	10,,	10′′	10,,

*This height is determined by size of pattern for Front, but may be increased to any desired height by inserting a filler piece between upper and lower halves of front, in which case dimensions E. F. J are increased correspondingly.

*For burning lignite or bituminous coal, we recommend that the distance from grates to shell be as given on page 16.

**Thickness of reinforced concrete slabs is based on average soil conditions.

VULCAN H.R.T. POWER BOILERS Additional Table of Data for Settings

Diameter			30,,		ਲ	36′′	*	42"	4	44	4	48"
Length		0,0,9	8,0,,	10,0,1	10,0,1	12,0,,	10,0,,	12,0,,	10.0,	12,0,,	12,0,,	14,0,,
	One Boiler	610	695	780	890	1000	1110	1210	1110	1210	1350	1450
Number of Firebricks	Two Boilers						2220	2420	2220	2420	2700	2900
	One Boiler	130	150	170	185	210	195	220	195	220	226	250
Number of Fire Bricks for each additional Foot in Height	Two Boilers				!		390	440	390	440	450	200
	One Boiler	3750	4330	4910	9069	0099	0089	7700	0089	7700	8500	9800
Number of Common Bricks	Two Boilers						10300	11900	10300	11900	13200	15000
	One Boiler	009	700	800	860	970	890	1000	880	1000	1020	1380
Number Common Bricks for each additional Foot in Height	Two Boilers						1260	1410	1260	1410	1450	2100
	One Boiler	12×15	12×16	12×16	15x1742	15x17½	15x24	15x24	171/5×24	171/2x24	171/5x26	17½×26
Height x Width of Breeching, inches	Two Boilers						24×30	24×30	24x35	24×35	24×38	24×38
	One Boiler	6'912"	6,81/2,1	6.91/2"	7,10 1/2"	7.101/2"	8,10,,,	8'10"	9'01/2"	3,016	3,249,6	9.51/2"
*Floor to Top of Breeching	Two Boilers	,					8'10'	8/10//	8,01%	9,01/2"	8,61%"	10,0,,
	One Boiler	16	16	15	20	82	50	29	22	22	24	24
Dimensions of Diameter in Inches	Two Boilers						58	26	56	92	38	30
	One Boiler	25	25	25	30	35	38	40	40	45	20	90
Height in Feetur	Two Boilers						45	20	36	92	09	09
		E'911	1/8/2	//0/0	1/5/0	11,677	7,9,6	11/6//	4,E"	11/6"	11,6	13/6"

"Minimum distance from top of Breeching to Ceiling for Fireproof Ceilings is 6", and for Ceilings of Wood Construction 12".

For Special Installations consult our Engineering **Where unfavorable conditions occur for draft, stacks should be not less than 35 feet high. Department.

VULCAN H.R.T. POWER BOILERS Additional Table of Data for Settings

Diameter			54′′			,,09			99			72′	,	
Length	1	12,0,,	14.0,,	16'0"	12,0,,	14'0"	16'0''	14,0,,	16,0,,	18,0,,	14,0,,	16'0"	18'0"	20,0,,
	One Boiler	1820	2000	2180	1900	2080	2260	2160	2330	2500	2310	2500	2690	2880
Number of Firebricks	Two Boilers	3640	4000	4360	3800	4160	4520	4320	4660	2000	4620	2000	5380	5760
	One Boiler	255	280	305	270	295	330	300	330	360	310	340	370	400
Number of Fire Bricks for each additional Foot in Height	Two Boilers	. 510	260	610	540	590	099	009	099	720	620	089	740	800
	One Bosler	14300	15800	17300	15400	16900	18400	18000	19700	21400	19100	20800	22500	24200
Number of Common Bricks	Two Boilers	21800	22900	24600	23400	25400	27400	26900	29200	31500	28700	31000	33300	35600
	One Boiler	1790	1910	2030	1850	2000	2150	2050	2200	2350	2100	2250	2400	2550
Number Common Bricks for each addi- tional Foot in Height	Two Boilers	2660	2870	3080	2940	3160	3380	3270	3480	3690	3360	3580	3800	4020
	One Boiler	20x27	20x27	20x27	24x30	24×30	24x30	24×36	24x36	24x36	33×35	33x35	33×35	33×35
Height x Width of Breeching, inches	Two Boilers	27x351/2	27x35½	27x35½	36x38	36×38	36×38	36x46	36x46	36x46	42x54	42×54	42×54	42×54
	One Boiler	11.1%"	11.11/2"	11/11/2"	11,8,,	11/8//	11'8"	12'5%"	12'534"	12'5%"	13/71/2"	13'71/2"	13,71/2"	13,11%"
*Floor to 1 op of Breeching	Two Boilers	11'812"	11'81/2"	11,815"	12'8"	12'8"	12'8'	13/6//	13/6"	13/6/	14'41/2"	14/4/2"	14/41/2"	14'4%
Č	One Boiler	26	56	26	56	28	178	30	30	33	33	36	36	36
Dimensions of	Two Boilers	30	33	33	æ	83	36	36	14	14	8	44 80	48	48
Stacks for Natural Draft	One Boiler	20	55	09	55	09	09	09	99	2	20	22	80	06
Height in Feetan	Two Boilers	09	65	70	92	02	2	75	80	82	82	90	95	105
Clear Same Spirite of Position		44/4//	43/4//	45/4//	447477	42.411	12/411	421411	45.411	477.411	49/9//	16/2//	1/6/4.	19797

*Minimum distance from top of Breeching to Ceiling for fireproof Ceilings is 6", and for Ceilings of wood construction 12".

^{**}Where unfavorable conditions occur for draft, stacks should be not less than 35 feet high. For special installations consult our Engineering Department.

VULCAN H.R.T. POWER BOILERS-Table of Suspension Material

ingle Size (a. 9.8# (a. 11.5# (a. 11	Single Size	Diameter		14,0"	12,0,,	14'0"	16,0,,	13/0//		14,0,,	'	10/91	10,10	66"	10/36	199	72" 14"0" 44"0" 44"0"
Single Size C - 7" E 28" E 28" E 29" E 28" E 29"	Single	L'ength		14.0	12.0.	14.0	16.0	12,0,,	14.	,	,, 16,0,,	-	16.0"	16'0" 14'0"	16'0" 14'0" 16'0" 1	16'0" 14'0" 16'0" 18'0" 1	16'0" 14'0" 16'0" 18'0" 14'0" 1
Double Size Overall Length St. S	Double Size 2-9" 15 2-12" 2-12" 15 2-12"		Size	## E	2-8" Ls @ 11.5#	2 2 €	2-8	2-9.	2-9" Es		2.9 (9.13	2-9" Es 2-10" Es @ 13.4 # @ 15.3 #	2-9" Es 2-10" Es 2-10" Es @ 13.4# @ 15.3# @ 15.3#	2-9" Es 2-10" Es 2-10" Es 2-10 di 13.4# (a 15.3# (a, 15.3# (b) 15.3# (c) 15.	2-9" Es 2-10" Es 2-10" Es 2-10" Es 2-10 @ 13.4# @ 15.3# @ 15.3# @ 15.3# @ 1	2-9" Es 2-10" Es 2-10" Es 2-10" Es 2-10" Es (2-10" Es (2	2-9" Es 2-10" Es 2-10" Es 2-10" Es 2-10 @ 13.4# @ 15.3# @ 15.3# @ 15.3# @ 1
Setting Size Q-2'' I's Z-12'' I's	Double Size Size 2.9" i's 2.10" i's 2.12" i's 2.			8,0,,	9'4"	9.4"	9'4"	9'10'	9.10		9'10"	9,10,, 10,6,,	10	10,6,, 10,6,, 10,	10,6,, 10,6,, 10,	10'6" 10'6" 11'0"	10.6" 10,6" 10'6" 11'0" 11'0' 11'0'
Single String Max. Height for this Size Column South Max. Height for this Size Column South Max. Height for this Size Column Setting Max. Height for this Size Column South Max. Height Grates to A11½" South Max.	Single Setting Max. Height for this Size Column South Max. Height for this Size Column Setting Size Column Size Column Size Column Size Column Size Column Size Column Max. Height for this Size Column Size Column Size Column Size Column Max. Height for this Size Column Size Column Size Column Size Column Max. Height for this Size Column Size Column Size Column Max. Height for this Size Column Max. Height Grates to Max. Height Ma	-	Size	9" I's 21.8#	##	2-12" I's	2-12" I's	2-12" I's	2-12" I's	2-12	-S#	I's 2-12" I's	1's 2-12" 1's 2-15" 1's # (# 40.8 # (# 42.9 #	1's 2-12" 1's 2-15" 1's 2-15" 1's # @ 40.8 # @ 42.9 #	1's 2-12" 1's 2-15" 1's 2-15" 1's # @ 40.8 # @ 42.9 #	1's 2-12" 1's 2-15" 1's 2-15" 1's 2-15" 1's 40.40.8# (0.42.9# (0.42.9#	1's 2-12" 1's 2-15" 1's 2-15" 1's # @ 40.8 # @ 42.9 #
Single Setting Max. Height for this Size Column Double Max. Height for this Size Column Size Column Max. Height for this Size Column Max. Height Grates to Setting Max. Height Grates to Setting Size Column Max. Height Grates to Size Column Max. Height Grates to Size Column Max. Height Grates to Size Column Double Max. Height Grates to Size Column Diameter 14% 14% 14% 14% 14% 14% 14% 14% 14% 14%	Size Size Size 138 # 18.9 #		Overall Length	13/5//	15/7"	167"	15/7"	16/11//	16/11"	16	417	18.1" 18.1"	11,,	11" 181" 181" 181"	11" 181" 181" 181"	11" 181" 181" 191"	11" 181" 181" 191" 191"
Single Max. Height for this Size Column Double Max. Height for this Size Column Size Column Max. Height for this Size Col. Softing Max. Height Grates to Size Softing Max. Height Grates to Setting Setting Max. Height Grates to Setting Max. Height Grates to Size Column Double Max. Height Grates to Size Column Diameter 14% 13% 14% 14% 14% 14% 14% 14% 14% 14% 14% 14	Sungle Setting "Overall Height for this Size Column 8232" 9'9" 9'9" 10'0" 10'0" Max. Height for this Size Column 10'4" 13'0" </td <td></td> <td>Size</td> <td>In</td> <td>In</td> <td>In</td> <td>In</td> <td>In</td> <td>To</td> <td>18.</td> <td>⊕# ©#</td> <td>\$ 5" H (\$\pi\$ # 18.9 #</td> <td># 18.9 #</td> <td>6 5" H & 5" H 18.9 # 18.9</td> <td>(a) 5" H(a) 5" H(a) 6" H(a) 6" H 18.9 # 18.9 # 20</td> <td>6 5" H 6 5" H 6 5" H 6 6" H 6 6" H 6 6" H 6 6" H 20 # 20 # 20</td> <td>(4) 5" H(4) 5" H(4) 6" H(5) # 18.9 # 20 #</td>		Size	In	In	In	In	In	To	18.	⊕# ©#	\$ 5" H (\$\pi\$ # 18.9 #	# 18.9 #	6 5" H & 5" H 18.9 # 18.9	(a) 5" H(a) 5" H(a) 6" H(a) 6" H 18.9 # 18.9 # 20	6 5" H 6 5" H 6 5" H 6 6" H 6 6" H 6 6" H 6 6" H 20 # 20 # 20	(4) 5" H(4) 5" H(4) 6" H(5) # 18.9 # 20 #
Setting Max. Height for this 5ize Column Max. Height Grates to Size Column Size Column Size Column Max. Height Grates to Size Column Size Column Size Column Size Column A"H@ 5"H@ 5"H@ 5"H@ 5"H@ 5"H@ 5"H@ 5"H@ 5	Setting Size Column Max. Height for this Size Column 10'4" 13'0" 10'0	Sura	*Overall Height	8'21/2"	3,8,,	3.6	3,6,6	10,0,	10.0%	10,0,,	1,4	10.8"	į	10,8,,	10'9" 10'9" 11'9" 11	10'9" 10'9" 11'2" 11	10'9" 10'9" 11'2" 11'2" 11"
Max. Height Grates to Shell for this Size Col. 4'1½" 5'9" 5'9" 5'9" 5'1½" </td <td>Max. Height Grates to Stee Col. 4116% 679% 679% 6713% <t< td=""><td></td><td>Max. Height for Size Column</td><td>10'4"</td><td>13,0,,</td><td>13'0''</td><td>13.0,,</td><td>13,0,,</td><td>13.0′′</td><td>13'0'</td><td></td><td>13.0,,</td><td>,</td><td>13.0,,</td><td>13'0" 13'0"</td><td>13'0" 13'0" 13'0"</td><td>13'0" 13'0" 15'0" 1</td></t<></td>	Max. Height Grates to Stee Col. 4116% 679% 679% 6713% <t< td=""><td></td><td>Max. Height for Size Column</td><td>10'4"</td><td>13,0,,</td><td>13'0''</td><td>13.0,,</td><td>13,0,,</td><td>13.0′′</td><td>13'0'</td><td></td><td>13.0,,</td><td>,</td><td>13.0,,</td><td>13'0" 13'0"</td><td>13'0" 13'0" 13'0"</td><td>13'0" 13'0" 15'0" 1</td></t<>		Max. Height for Size Column	10'4"	13,0,,	13'0''	13.0,,	13,0,,	13.0′′	13'0'		13.0,,	,	13.0,,	13'0" 13'0"	13'0" 13'0" 13'0"	13'0" 13'0" 15'0" 1
Size 4"H @ 5"H	Double Stree A"H (m) F."H		Max. Height Grates to Shell for this Size Col.	4.41%"	2,6,9	2,6,9	2,8,,	5.11/2"	5'11/2"	5.41%"	1	4.7"	1	4.7"	47" 47"	47" 47" 47"	47" 47" 47" 61"
*Overall Height 8'2½" 9'9" 9'9" 10'0	Double Setting *Overall Height 8'2½" 9'9" 9'9" 10'0" 10'0" 10'0" Setting Size Column Max. Height Grates to Shall for this Size Col. 4'1½" 5'9" 5'9" 5'1½" 5'1½" 5'1½" Diameter 1¼" 1¼" 1¼" 1½" 1½" 1½" Diameter 1¼" 1½" 1½" 1½" 1½" Length, Single Setting 3'3" 3'8½" 3'8½" 3'8½" 3'10½"			4" H @ 13.8#	5" H@ 18.9#	IO	5" H (@	I o	5" H @ 18.9#	TO	9#	5" H @ 18.9#	5" H	5".H @ 5".H	5".H @ 5".H @ 5".H	5" H @ 5" H @ 5" H @ 6" H	5" H @ 5" H @ 6" H @ 6" H @ 6" H 18.9 # 20# 20#
Max. Height for this Size Column Max. Height Grates to Shall for this Size Col. Max. Height Grates to Shall for this Size Col. Diameter 13'0"	Setting Size Column Max. Height Grates to Max. Height Grates to Shell for this Size Col. Diameter Dia	Dank		8'23%"	9,8,,	3,8,,	3,6,6	10,0,,	10,0,1	10,0	1	6,01	-	10/9″ 10	10'9" 10'9" 10'9"	10'9" 10'9" 11'2"	10'9" 10'9" 10'9" 11'2" 11'2"
Col. 4/1½" 5'9" 5'9" 5'9" 5'1½" 5'1½" 5'1½" 1½" 1½" 1½" 1½"	Max. Height Grates to 41½" 5'9" 5'9" 6'9" 5'1½" 6'1½" 6'1½" nsion Length, Single Setting 33" 3'8½" 3'8½" 3'8½" 3'10½" 3'10½"	Settin	Max. Height for Size Column	10'4"	13,0,,	13,0%	13'0''	13,0,,	13,0,,	13.0	1	13.0′′		13.0′′	13.0" 13.0"	13.0" 13.0" 13.0"	13.0" 13.0" 15.0"
114" 114" 114" 115" 115"	Diameter 114" 114" 114" 115" 115" 115" 115" 115"		Max. Height Grates to Shell for this Size Col.	4.11/2"	2,8,,	5/9//	2,8,4	5'11/2''	5'11%"	5/13	24	"L. 47".		,,L,	47" 47"	47" 47"	47" 47" 6'1"
	nsion Length, Single Setting 3'3" 3'8½" 3'8½" 3'8½" 3'10½" 3'10½"		Diameter	11/4"	11/4"	11%"	11/4"	13/2"	11/2"	172		1/2"		11/2"	11/2" 11/2"	11/2" 11/2" 18/4"	135" 135" 184" 184"
Length, Double Setting 3'5" 3'10%" 4'0\%" 4'0\%" 4'1\4" 4'1\%" 4'1\%"		prox.	Single Setting	1010	1430	1430	1430	1550	1550	1550		1870	_	1870	1870 1870	1870 1870 1870	1870 1870 1870 1940
Length, Double Setting 3'5" 3'10;5" 4'0;2" 4'0;5" 4'1;2" 4'1;2" 5'10;5" 5'10;5" 1550 1550	Single Setting 1010 1430 1430 1430 1550 1550	ight, lbs.	Double Setting	1940	2680	3080	3080	2200	2300	2000	İ.	1	4900	4300	4200 4450	A200 44E0 44E0	A300 A450 A450 A700 G200

height is "areased correspondingly.
It is recommended, especially for the larger and higher settings, that the columns be braced and that the settings be strengthened with buckstays as illustrated by figure
No. 321, page 16.
Where space is available, boilers 66" diam, and over should be set singly.
Our Engineering Department is at your service, and would be glad to assist you in working out your boiler installation problems. *This height is for the minimum distance from grates to shell shown in table on page 11 as dimension "I." When the height from grates to shell is increased, this overall

VULCAN H.R.T. POWER BOILERS LIST OF STANDARD FITTINGS

Boilers up to and including 48" diameter are supplied with the following:

- 1 -C.I. Upper Section of Front with right and left Smokebox Doors.
- 1 -C.I. Lower Section of Front with right and left firedoors having draft discs and baffle plates attached; right and left ashpit doors, one with damper door and one with draft disc.

Sufficient bolts for joining sections of front together, also sufficient anchor bolts for securely anchoring front to brickwork.

- -C.I. Stack Plate.
- -Steel Plate Damper.
- 1-C.I. Arch Plate.
- 1-Set of Standard Diagonal Grate Bars.
- 2-C.I. Angle Bars.
- 1-C.I. Tee Bar (for boilers up to 42" dia. inclusive).
- 2—C.I. Tee Bars (for boilers over 42"dia.) 1—C.I. Cleanout Door.
- 4—Anchor Rods for Cleanout.
- 1 -C.I. Water Column.
- 3-Gauge Cocks.

- 1-Set of Water Gauge Mountings. Piping, valves and fittings, etc., for connecting water column.
- 1—Steam Gauge with cock and syphon.
- 1-Safety Valve.
- 1—Gasket for Safety Valve.
 1 Blow-off Valve "Y" type.
 Blow-off piping to exterior of boiler.
- 1-Flue Cleaner with handle 6" longer than tubes.
- Poker.
- -Scraper.
- Steel Bearing Plates (For boilers up to
- 4—Steel Rollers. and including 48" Øx12'0" long.

Suspension Material, including:

- 4 Columns. For
- 48"x14'0" 2-Compound Beams.
- 4 Hanger Rods. boiler only. Necessary bolts for erection.

Boilers 54" diameter and over are supplied with the following:-

- 1—C.I. Upper Section of Front with right and left smokebox doors.
- 1—C.I. Lower Section of Front with right and left firedoors with baffle plates and draft discs; right and left ashpit doors with draft discs; baffle plate between firedoors with sliding damper. Sufficient bolts for joining sections of front together, also sufficient anchor bolts for securely anchoring front to
- 1-C.I. Stack Plate.

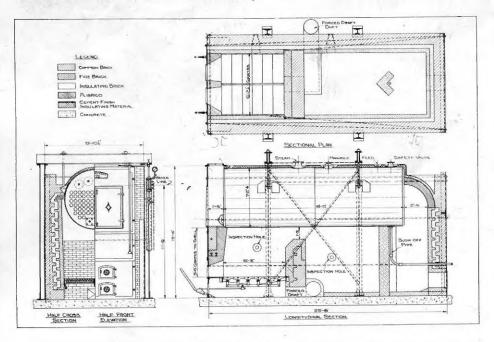
bričkwork.

- 1-Steel Plate Damper with operating mechanism.
- C.I. Dead Plate.
- 1-Set of Standard Diagonal Grate Bars.
- 1-C.I. Centre Bearing Bar for grates (when required).
- 2-C.I. Angle Bars.
- 2-C.I. Tee Bars.
- 1-C.I. Cleanout Door and Frame.

- 4—Anchors for Cleanout. 1-C.I. Water Column.
- 3—Gauge Cocks.
- 1 Set of Water Gauge Mountings. (Gauge Cocks and Water Gauge Mountings are supplied complete with chains, etc., for operating on high settings.) Piping, Valves and Fittings, etc., for connecting Water Column.
- -Steam Gauge with cock and syphon.
- 1 Safety Valve (two supplied for sizes requiring two valves also "Y" base connected to boiler.)
- 1—Gasket for Safety Valve. 1—Blow-off Valve "Y" Type.
 - Blow-off Piping to exterior of boiler.
- 1-Flue Cleaner with handle 6" longer than tubes.
- Poker.
- 1—Scraper.
- Suspension Material, including:
 - 4—Columns.
 - 2—Compound Beams.
 - 4—Hanger Rods.
 - Necessary bolts for erection.

No Arch Plate is supplied with boilers 54" diameter and over, as it is customary to build the arch of firebrick. However, we carry special C.I. Arches for this purpose, which can be supplied at an extra cost if required.

Buckstays, through buckstay rods, etc., are considered as an extra and are therefore not called for in the list of standard fittings.



150 H.P. VULCAN Power Boiler Setting, with special grates and large combustion chamber for burning lignite coal, fully braced and insulated.

Fig. No. 321

The fuel to be used and the rating expected from a boiler has considerable bearing on the type of brick setting required. The data on brick settings listed on the preceding pages are for average conditions only and we assume no responsibility in connection with their use unless passed upon by our Engineering Department for each particular installation.

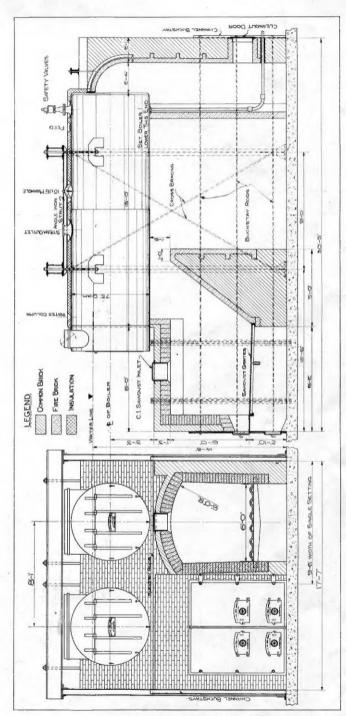
For burning Western Lignite and other low rank coals a large combustion space is essential. We recommend the following heights from grates to shell for burning lignite.

48"	Diam.	Boiler	48 inches
5411	44	11	48 "
60"	66	66	.54 "
60" 66"	6.6	66	54 "
72"	44	46	60

For the efficient combustion of low rank fuels, such as lignite, grates of the proper design must be used. With such grates efficiencies up to 73% have been obtained with this fuel. We manufacture grates designed especially for this purpose and would strongly recommend their installation where lignite coal is to be used.

Forced draft equipment is not essential, but is very desirable on most installations, as a greater efficiency will result due to more complete combustion and lower stack temperatures.

Write to us for advice on your boiler installation and we shall be glad to submit plans and estimates.



150 H.P. VULCAN Power Boiler with Dutch Oven Setting. Fig. No. 322

In Saw Mills and other industries where there is a continuous supply of combustible refuse, the Dutch Oven Setting offers an economical method of turning this waste into power. Shavings and other refuse may be introduced into the furnace by means of the sawdust inlet shown in We are prepared to submit The oven is built high enough to permit a very thick fuel bed and a large combustion chamber. plans for all sizes of installations to suit the conditions of fuels and capacities. the above plan.

VULCAN GRATES



Diagonal Grate Bar Fig. No. 323



Single Bar Common Grate (5 Sections) Fig. No. 324



Double Bar Common Grate Bar Fig. No. 325



Herringbone Grate Bar Fig. No. 326



Sawdust Grate Bar Fig. No. 327

DIAGONAL GRATE BAR

This type of bar is regularly furnished with VULCAN Power and Heating Boilers.

57%" wide x 24", 30", 36", 42", 48", 54" or 60" long. To obtain greater lengths use a centre bearing bar.

SINGLE BAR COMMON GRATE

This type of bar is adaptable to any size of furnace as it can be built up to any width ..

1½" wide x 21", 24", 27", 30", 36", 42", 48", 54", 60" or 66" long.

DOUBLE BAR COMMON GRATE

This type of bar is furnished in the following sizes:

2" or 21/2" wide x 30" long.

3" wide x 36" or 42" long. 3½" wide x 42", 48", 54" or 60" long.

HERRINGBONE GRATE BAR

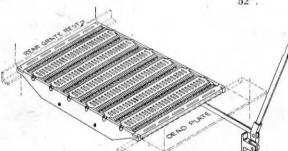
This type of bar is furnished in the following sizes: 51/4" wide x 30", 36", 42" or 48".

SAWDUST GRATE BAR

Sawdust Grates can be furnished in either of two types, namely: Cone type or Stepped type.

Cone type (as illustrated). 10" or 12" wide x any length up to 48". Stepped type.

10 1/2" or 12" wide x any length up to



VULCAN Standard Rocking Grates Fig. No. 364

VULCAN STANDARD ROCKING GRATES

VULCAN Rocking Grates can be made up in multiples of 6 inches in-width and 6 inches in length.

They can be installed in H.R.T. Boilers as illustrated. 716" Air Space, 1/2" Bridge.

Note: We manufacture many types of grates which have not been illustrated here, such as specially designed rocking and dumping grates for burning lignite coal, etc.

We will be pleased to advise you on your combustion problem and to suggest the proper grate for your condition of firing.

We would be pleased to submit designs and estimates on power plant equipment. The following are some of our specialties:

SMOKE BREECHINGS



"V" Type Breeching

for connecting two boilers to one stack.

Fig. No. 362a



Horizontal Breeching

for connecting two or more boilers to one stack.

Fig. No. 362b

We manufacture breechings of any type or size to suit the conditions of the boiler room and can make them of either welded or rivetted construction.

SMOKE STACKS

Welded or Rivetted. Self Supporting or Guyed.

DRAFT DUCTS

Welded or Rivetted.

COAL HANDLING EQUIPMENT

Elevators—Conveyors—Pivotted Bucket Carriers, Hoppers—Feeders.

ASH REMOVING APPARATUS

Hydraulic and Hand Operated Hoists Ash Cars Ash Drags

BLOW-OFF TANKS

Steel Plate—Cast Iron.
Built to conform with the Canadian Inter-Provincial Regulations.

FEED WATER HEATERS

BOILERS

Heating Horizontal Return Tubular, Firebox, Vulcan Combination and Vulca,

Power Horizontal Return Tubular, Locomotive Type Firebox, Return Tubular Firebox and Vertical.

Write for pamphlets on the above VULCAN products and we shall be pleased to mail them to you.

P-12

Page 19